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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/564,892

01/17/2006

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0001.1125

3441

49455 7590 03/17/2009

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EXAMINER

PENDLETON, DIONNE

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

03/17/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/564,892	Applicant(s) HAN, MOON-SOO	
	Examiner DIONNE H. PENDLETON	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/17/06, 6/11/08 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings were received on 1/17/2006 and 6/11/2008. These drawings are accepted.

Specification

2. The substitute specification filed 1/17/2006 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 7 and 8** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, claim 7 recites in lines 3-4, "...controller calculates a target track to be jumped to". It is unclear to the Examiner how or why the controller calculates a "target track", considering that the target track is specified by an input to the disk drive apparatus, e.g. a user command to move to a new specified target track. The Applicant's response in papers filed 12/15/2008 are acknowledged. However, merely citing locations in the specification which include similar recitations is not sufficient to clarify the issue of record.

Claim 8 is rejected due to its dependency upon rejected base claim 7.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-6, 9, 13 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nakatsu (Patent Number 4,955,009)** in view of **Akiyama (Patent Number 5,712,835)**.

Regarding apparatus claim 1 and method claim 4,

Nakatsu teaches an apparatus for performing track jumping in consideration of a position of a pickup, the apparatus comprising:

a pickup (**"6" in figure 2**) to read a signal from an optical disc;

an RF processing unit (**"15" in figure 2; output of circuit "15" interpreted as "error signal", see Column 5:22-31**) to generate an error signal to control the pickup by shaping and amplifying the signal read by the pickup;

a servo (**"60"**) to judge a position of the pickup based on the error signal (**column 5:28-31 discloses comparison between actual and reference values**), generate a track jump start control signal; and

and a driver (**"5" in figure 2**) to move the pickup directly to a target track of the optical disc in response to the track jump start control signal, and stop moving the pickup in response to the track jump end control signal (**column 6:21-26**).

Art Unit: 2627

Nakatsu fails to expressly teach that the track jump start control signal is based on the judged position of the pickup.

AKIYAMA teaches an optical disk drive apparatus wherein in an access operation from a position P2 to a position P3, the light spot is correctly positioned in the center of the track before the start of the track jump (**column 8, lines 62-65 and column 9, lines 6-11**). Akiyama is therefore interpreted as teaching that the track jump from P2 *directly* to P3 is based on the judged position of the pickup, since the track jump from position P2 starts only after the position of the light spot has been corrected.

It would have been obvious for one of ordinary skill in the art at the time of the invention to alter the invention of NAKATSU per the teachings of AKIYAMA, for the purpose of improving the accuracy of the access operation.

Regarding claim 2,

Akiyama teaches wherein if the judged position of the pickup unit is within a reference range e.g. the center of the track, the servo outputs a predetermined voltage as the track jump start control signal to the driver (**column 9:5-11 discloses that the light spot must be appropriately positioned *before* the second track jump**).

Regarding claim 3,

The combined disclosures of Nakatsu and Akiyama, specifically Akiyama teaches that if the judged position of the pickup unit is not within a reference range e.g.

Art Unit: 2627

the center of the track, the servo cuts off a predetermined voltage from being output as the track jump start control signal to the driver (***the velocity generating signal is cut off following the completion of the first jump but prior to the start of the second jump, for the purpose of adjusting the position of the light spot***) until the judged position of the pickup is within the reference range (**column 9:5-11 discloses that the light spot must be appropriately positioned i.e., “within the reference range” before the second track jump commences**).

Regarding claim 5,

The combined disclosures of Nakatsu and Akiyama, specifically Akiyama teaches wherein if the judged position of the pickup unit is within a reference range e.g. the center of the track, the servo outputs a predetermined voltage as the track jump start control signal to the driver (**column 9:5-11 discloses that the light spot must be appropriately positioned before the second track jump**);

and if the judged position of the pickup unit is not within a reference range e.g. the center of the track, the servo cuts off a predetermined voltage from being output as the track jump start control signal to the driver (***the velocity generating signal is cut off following the completion of the first jump but prior to the start of the second jump, for the purpose of adjusting the position of the light spot***) until the judged position of the pickup is within the reference range (**column 9:5-11 discloses that the**

Art Unit: 2627

light spot must be appropriately positioned i.e., “within the reference range” before the second track jump commences).

Regarding claim 6,

Nakatsu teaches an apparatus for performing track jumping of an optical pickup in an optical disc recording/reproducing apparatus, the apparatus comprising:

an RF processing unit (**“15” in figure 2; output of circuit “15” interpreted as “error signal”, see Column 5:22-31**) to generate an error signal to control the pickup by shaping and amplifying the signal read by the pickup;

a servo (**“60” in figure 2**) to judge a position of the pickup relative to a track of the optical disc based on the positional error signal, and output a tracking control signal for controlling a position of the optical pickup based on the judged position;

a driver (**“5” in figure 2**) to control the position of the optical pickup using the tracking control signal output from the servo) to move the pickup directly to a target track of the optical disc ;

and a controller (**“90”, also see column 1:46-48**) to monitor the control signal and control the track jumping based on the control signal,

Nakatsu does not expressly teach the controller delays outputting the track jump start control signal to the driver until the tracking control signal indicates that the position of the optical pickup is in a predetermined location.

AKIYAMA teaches an alternative embodiment wherein a track jump start control signal is generated only if the position of the optical pickup is at a predetermined location. Specifically, Akiyama teaches that prior to jumping from position P2 to position P3, the light spot is correctly positioned in the center of the track before the start of the track jump (**column 8, lines 62-65 and column 9, lines 6-11**).

In discussion of an alternative embodiment, Akiyama teach that if the position of the optical pickup is not at a predetermined location, as determined by tracking control unit ("5" in figure 2) the track jump start control signal is not enabled.

The combined disclosures of Nakatsu and Akiyama do not expressly teach that the controller outputs a track jump start control signal only if the position of the optical pickup is within a *predetermined range* of the center of the track. However, since Akiyama teaches that by centering the light spot on the instant track prior to commencing a track jump, the accuracy of a track jump is improved, it follows that delaying a track jump until the pickup is within a predetermined range of a center of a track, will also act to increase the accuracy of a subsequent track jump.

Therefore, It would have been obvious for one of ordinary skill in the art at the time of the invention to alter the invention of NAKATSU per the teachings of AKIYAMA, for the purpose of improving the accuracy of the access operation.

Art Unit: 2627

Regarding claim 9,

As recited in the detailed rejections of independent claims 1, 4 and 6, above, the combined disclosures of Nakatsu and Akiyama, teach a method of controlling track jumping of an optical pickup relative to an eccentrically rotating track of an optical disc, the method comprising:

judging whether a position of the optical pickup is in a predetermined location at a time of a track jump command **(column 9:5-11 of Akiyama);**

immediately outputting the track jump command to the optical pickup if the pickup is within the predetermined range, as broadly claimed;

and delaying the outputting of the track jump command if the pickup is not within the predetermined range, as broadly claimed **(column 9:5-11 of Akiyama discloses that the light spot must be correctly positioned before the track jump commences; also see column 4:59-66).**

The combined disclosures of Nakatsu and Akiyama do not expressly teach judging whether a position of the optical pickup is within a predetermined range relative to a center of the track at a time of a track jump command.

However, since Akiyama teaches that by centering the light spot on the instant track prior to commencing a track jump, the accuracy of a track jump is improved, it follows that delaying a track jump until the pickup is within a predetermined range of a center of a track, will also act to increase the accuracy of a subsequent track jump.

Regarding claim 13,

Akiyama teaches delaying the outputting of the track jump command to the optical pickup until the optical pickup is within a predetermined range (**Akiyama teaches that the beam spot must be centered on the track prior to commencement of the final jump, see column 4:56-60**); and outputting the track jump command to the optical pickup while the optical pickup is within the predetermined range (**column 4:63-66**).

Regarding claim 15,

Both Nakatsu and Akiyama teach that the track jump command causes the optical pickup to start moving toward a target track of the optical disc (**see column 5:1-2**); and the method further comprises outputting a track jump stop command to the optical pickup when the optical pickup arrives at the target track (**column 6:21-26 discloses that when the beam spot crosses the last midpoint before the target track, the jump-stop control signal will be generated**).

5. **Claims 7-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nakatsu (Patent Number 4,955,009)** in view of **Akiyama (Patent Number 5,712,835)** as applied to claim 6, and further in view of **Ceshkovsky (Patent Number Re. 32,574)**.

Regarding claim 7 and as best understood with regard to the USC 112 second paragraph rejection above,

NAKATSU and AKIYAMA teach the apparatus of claim 6.

Nakatsu teaches that the controller outputs a track jump start signal to the driver **(column 1:46-48 teaches that “90” supplies the jump command)** and sets an output time of the track jump-end signal **(column 6:21-26 discloses that when the beam spot crosses the last midpoint before the target track, the jump-stop control signal will be generated).**

However, Nakatsu fails to expressly teach that the controller calculates a target track to be jumped.

CESHKOVSKY teaches that the controller calculates a target track to be jumped to **(column 6:55-60 discloses that the controller calculates the drive signal as a function of the distance to be traveled).**

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of NAKATSU/AKIYAMA and CESHKOVSKY, therein calculating drive voltages as a function of track jump, as claimed, since to do so is a known technique in the art and would yield predictable results such as tailoring the drive signal according to the distance between tracks to travel.

Regarding claim 8,

Nakatsu teaches the apparatus of claim 6, wherein: the controller outputs the track jump end signal to the driver when the optical pickup arrives at the target track **(column 6:21-26 discloses that when the beam spot crosses the last midpoint before the target track i.e., arrives at the target track, the jump-stop control signal is generated).**

6. **Claims 10,11,12,14 and 16**,are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nakatsu (Patent Number 4,955,009)** in view of **Akiyama (Patent Number 5,712,835)** and further in view of the **Admitted Prior Art (Applicant's Admission of Fact of the Official Notice in the previously mailed official action).**

Regarding claims 10,11,12,14 and 16,

The combined disclosures of Nakatsu and Akiyama teach the limitations of claims 4, 6 and 9, respectively. They fail, however, to expressly teach that the jump-start control signal is a "kick voltage" or that the jump-end control signal is a "brake voltage". However, The Examiner takes the Official Notice that it is well known in the art and would be obvious to apply a kick voltage and a brake voltage for the purpose of forcibly moving the optical pickup in an axial direction (see pertinent references provided below by the Examiner).

Response to Arguments

7. Applicant's arguments filed 12/15/2008 have been fully considered but they are not persuasive.

a. Regarding Applicant's argument that ***The Second Jump Of Akiyama Cannot Reasonably Be Considered To Be Generated Based On The Judged Position Of The Pickup Because The Same Jump Start Control Signal Is Generated Regardless Of Whether The Light Spot Is Centered:***

The Applicant's argument is not persuasive since it appears that the Applicant is ignoring Akiyama's disclosure of two embodiments, the first of which does not require centering of the light spot prior to commencing jump to position P3, and the second embodiment, which clearly discloses commencing jump to position P3 only after centering of the light spot at position P2, as is clearly taught in **column 8, lines 62-65** and **column 9, lines 5-10**. The Applicant appears to assert that an "optional" tracking operation prior to accessing position P3 cannot fairly anticipate the feature of the claim. However, the Examiner finds the Applicant's assertion to be unreasonable as Akiyama has clearly recognizes a need in the art for increasing accuracy of a track jump by employing the very feature recited in the Applicant's claim.

b. Regarding the Applicant's argument that ***The Tracking Control Unit 6 Does Not Output To The Track Jump Control Unit 8 To Tell The Track Jump Control Unit That The Light Spot Is Centered In Position P2 And Therefore Akiyama Fails To Judge The Position Of The Light Spot :***

Nakatsu is relied upon as teaching a servo to judge a position of the pickup based on the error signal and also to generate a track jump start control signal. The question as to the novelty of generating the track jump control signal based upon the position of the pickup is answered in consideration of the Akiyama reference which recognizes a need in the art for controlling the commencement of track jump based upon the position of the pickup, as claimed. In response to applicant's arguments against the Akiyama reference individually, one cannot show nonobviousness by attacking the Akiyama reference individually where the rejection is based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

c. Regarding Applicant's argument that ***Akiyama Does Not Disclose Or Suggest A Driver To Move The Pickup Directly To A Target Track Of The Optical Disc In Response To The Track Jump Start Control Signal***, as newly amended:

Nakatsu is relied upon as teaching a driver to move the pickup directly to a target track of the optical disc in response to the track jump start control signal, as is clearly addressed in the detailed rejection above and is further supported by the Nakatsu specification. The question as to the novelty of generating the track jump control signal based upon the position of the pickup is answered in consideration of the Akiyama reference which recognizes a need in the art for controlling the commencement of track jump based upon the position of the pickup, as claimed. In response to applicant's arguments against the Akiyama reference individually, one cannot show

Art Unit: 2627

nonobviousness by attacking the Akiyama reference individually where the rejection is based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

d. Regarding Applicant's argument that ***Akiyama Does Not Disclose Or Suggest A Controller To Monitor The Control Signal And Control The Track Jumping Based On The Control Signal***, as specifically recited in the claim:

Nakatsu is relied upon as teaching a controller to monitor the control signal and control the track jumping based on the control signal. The question as to the novelty of generating the track jump control signal based upon the position of the pickup being within a predetermined range is answered in consideration of the Akiyama reference which recognizes a need in the art for controlling the commencement of track jump based upon the position of the pickup, as well as the discussion of the obviousness of commencing track jump based upon proximity to the center of the track. In response to applicant's arguments against the Akiyama reference individually, one cannot show nonobviousness by attacking the Akiyama reference individually where the rejection is based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Art Unit: 2627

e. Regarding Applicant's argument that ***Akiyama Does Not Disclose Or Suggest Judging Whether A Position Of The Optical Pickup Is Within A Predetermined Range Relative To The Center Of The Track, And Delaying The Outputting Of The Track Jump Command As Recited:***

Please see the detailed rejection of claims 6 and 9, as provided above.

f. Regarding Applicant's argument that ***By Citing Shioura, Lee And Asakura, In Support Of The Examiner's Statment Of Official Notice, The Examiner Is Relying On Shioura, Lee And Asakura To Support The Rejection, And Therefore, The Examiner Is Requested To Repeat The Rejection, Including Shioura, Lee And Asakura, Therein.***

The Examiner rejects the notion that by citing Shioura, Lee and Asakura as proof of common knowledge in the art of the use of kick/brake voltage, the Examiner is relying on Shioura, Lee and Asakura.

In the instance that the Examiner did not cite Shioura, Lee and Asakura as an accompaniment to the Official Notice Statement, the Attorney could, as a challenge to the Examiner's assertion of common knowledge in the art, request that the Examiner provide evidence of the feature's teaching in the prior art. The Examiner has merely provided said evidence in anticipation of the Attorney's request.

Furthermore, the Examiner has not included the phrase "obvious to modify" in the Official Notice, above. The Examiner's statement "that it is well known in the art and

Art Unit: 2627

would be obvious to apply a kick voltage and a brake voltage for the purpose of forcibly moving the optical pickup in an axial direction”, is intended to serve as an assertion of common knowledge in the art of the output of a kick voltage and a brake voltage for adjusting the position of an optical pickup.

The Applicant’s decision to argue the preemptive citing of evidentiary prior art, rather than to make the argument that the positional adjustment to the pickup unit via kick voltage and brake voltage, is not common knowledge in the art (thereby effectively challenging the Official Notice statement on the merits), is interpreted by the Examiner as an Admission of fact.

g. Regarding Applicant’s argument that ***Claims 7 And 8 Have Been Improperly Rejected Based On A Misinterpretation Of The Language Of Claim 7 By The Examiner:***

Please see the U.S.C. 112 second paragraph rejection of claims 7 and 8, as provided above.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIONNE H. PENDLETON whose telephone number is (571)272-7497. The examiner can normally be reached on 10:30-7:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2627

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/Dionne H Pendleton/
Examiner, Art Unit 2627

/Wayne Young/
Supervisory Patent Examiner, Art Unit 2627